

# MATERIAL SAFETY DATA SHEET



## EMPIRE\* 20 MICROENCAPSULATED INSECTICIDE

Emergency Phone: 800-992-5994  
Dow AgroSciences • Indianapolis, IN 46268

Effective Date: 01/01/98  
Product Code: 13042  
MSDS: 002481

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** EMPIRE\* 20 MICROENCAPSULATED  
INSECTICIDE

#### COMPANY IDENTIFICATION:

Dow AgroSciences  
P.O. Box 681428  
9330 Zionsville Road  
Indianapolis, IN 46268-1189  
www.dowagro.com

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl)	
phosphorothioate (Chlorpyrifos) CAS# 002921-88-2	20%
Proprietary petroleum solvent	10%
Water and other proprietary ingredients	70%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Hazardous chemical. Product is off-white liquid with a musty odor. Product does not burn.

**EMERGENCY PHONE NUMBER:** (U.S.) 800-992-5994

This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

**POTENTIAL HEALTH EFFECTS** (See Section 11 for toxicological data.)

**EYE:** Essentially non-irritating to eyes.

**SKIN CONTACT:** Prolonged contact is essentially non-irritating to skin. Did not cause allergic skin reactions when tested in guinea pigs. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD50 for skin absorption in rabbits is >10,000 mg/kg.

**INGESTION:** Single dose oral toxicity is extremely low. The oral LD50 for rats is >25,000 mg/kg. No hazards anticipated from ingestion incidental to normal handling operations.

**INHALATION:** Vapors are unlikely due to physical properties.

#### SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:

Chlorpyrifos is a cholinesterase inhibitor. Chlorpyrifos produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposures that would be received during use of this product. Excessive exposure to solvent may cause respiratory irritation and central nervous system effects; however, excessive exposure to chlorpyrifos or to solvent is unlikely due to physical state (encapsulated).

**CANCER INFORMATION:** Chlorpyrifos did not cause cancer in long-term animal studies.

**TERATOLOGY (BIRTH DEFECTS):** Chlorpyrifos did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

**REPRODUCTIVE EFFECTS:** Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the off-spring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

### 4. FIRST AID:

**EYES:** Flush with plenty of water for 5 minutes.

**SKIN:** Wash thoroughly with soap and water.

**INGESTION:** Induce vomiting if large amounts are ingested. Consult medical personnel.

**INHALATION:** Remove to fresh air if effects occur. Consult a physician.

**NOTE TO PHYSICIAN:** Chlorpyrifos is a cholinesterase inhibitor. Atropine by intravenous administration is the preferable antidote. Oximes may or may not be therapeutic but it is recommended they not be used in place of atropine. Suggest serum and/or RBC cholinesterase determination. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

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### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** >200°F @ 763 mm Hg

**METHOD USED:** Closed Cup

#### FLAMMABLE LIMITS

LFL: None

UFL: None

**EXTINGUISHING MEDIA:** Water fog, foam, CO<sub>2</sub>, dry chemical.

**FIRE AND EXPLOSION HAZARDS:** Does not burn.

**FIRE-FIGHTING EQUIPMENT:** Wear positive pressure, self-contained breathing apparatus.

### 6. ACCIDENTAL RELEASE MEASURES: (See Section 15 for Regulatory Information)

**ACTION TO TAKE FOR SPILLS/LEAKS:** Sweep up into plastic bags using sweeping compound.

### 7. HANDLING AND STORAGE:

**SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides or fertilizers. Do not store above 122°F for extended periods of time. Preferred storage is above 32°F. Storage below 32°F may result in solidification. If warmed to above 32°F, product will return to original form. Freezing does not adversely affect this product.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

**EXPOSURE GUIDELINE(S):** Chlorpyrifos: ACGIH TLV and OSHA PEL are 0.2 mg/m<sup>3</sup>, Skin. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

**ENGINEERING CONTROLS:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guideline.

**SKIN PROTECTION:** No precautions other than clean body-covering clothing should be needed.

**EYE PROTECTION:** Use safety glasses.

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**BOILING POINT:** 212°F, 100°C \*\*

**VAPOR PRESSURE:** 17.5 MMHG @ 20°C\*\*

**VAPOR DENSITY:** <1\*\*

**SOLUBILITY IN WATER:** Disperses in water

**SPECIFIC GRAVITY:** 1.0410 @ 20°C

**pH:** 9.3 (9.9% mixture in water)

**APPEARANCE:** Off-white liquid

**ODOR:** Musty odor

\*\*Data for water

### 10. STABILITY AND REACTIVITY:

**STABILITY:** (CONDITIONS TO AVOID) Avoid heating above 50°C for extended periods -- loss of active ingredient may result.

**INCOMPATIBILITY:** (SPECIFIC MATERIALS TO AVOID) Bases. Consult manufacturer for specific cases.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Hydrogen chloride, ethyl sulfide, diethyl sulfides, nitrogen oxides.

**HAZARDOUS POLYMERIZATION:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION:

For detailed toxicological data, write the address shown in Section 1 or call the emergency number.

**MUTAGENICITY:** Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

### 12. ECOLOGICAL INFORMATION:

For detailed toxicological data, write the address shown in Section 1 or call the emergency number.

This pesticide is toxic to birds and wildlife.

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### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Do not contaminate food, feed, or water by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. Pesticide, spray mixture, or rinse water that cannot be used according to label instructions, must be disposed of in accordance with applicable local, state or federal requirements.

### 14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow AgroSciences representative.

### 15. REGULATORY INFORMATION:

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See MSDS Sheet for health and safety information.

#### U.S. REGULATIONS

**SARA 313 INFORMATION:** To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: A delayed health hazard.

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
CHLORPYRIFOS	002921-88-2NJ3	PA1, PA3

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

**OSHA HAZARD COMMUNICATION STANDARD:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:**

Health	2
Flammability	0
Reactivity	0

**COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):** This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases: Category:

Chemical Name	CAS#	RQ	% in Product
CHLORPYRIFOS	002921-88-2	1	20%

### 16. OTHER INFORMATION:

#### MSDS STATUS:

Revised to reflect company name change

EPA Registration Number: 10350-10-62719

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.